

Understanding the Total Portfolio Approach: Private markets investing beyond traditional boundaries

Key takeaways

- 1** The total portfolio approach (TPA) reframes private markets from satisfying a target allocation to competing for capital to improve total-portfolio outcomes.
- 2** TPA's flexibility allows for greater consideration of the unique attributes of private market assets but requires stronger governance and common risk measures.
- 3** Strategic asset allocation (SAA) and TPA span a flexibility–governance spectrum. TPA's flexibility requires more explicit quantification of idiosyncratic characteristics and risks.

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Introduction

Our earlier primer set out the broad distinction between Strategic Asset Allocation (SAA) and the Total Portfolio Approach (TPA). This paper assumes that foundation and asks a narrower question: what changes when the asset class in question is private markets?

That question matters because private markets bring the TPA debate into sharper focus. Private equity, private credit, real estate and infrastructure can offer access to assets, cash flows, managers and structural themes that are difficult to replicate in public markets. They can also introduce illiquidity, valuation uncertainty, manager-specific risk and implementation constraints that are harder to manage through fixed policy weights and benchmark-relative thinking.

The key shift under TPA is therefore not that private markets become easier to own, or automatically more attractive. If anything, the test becomes more demanding. A private commitment must earn its place against every other use of capital, risk, liquidity and governance attention. The investor's question moves from "are we at our target allocation?" to "is this exposure, today, the best use of the next dollar of risk?" That reframes three long-standing challenges in private markets: comparing public and private exposures on a common footing; avoiding commitment decisions driven mainly by policy weights; and managing illiquid, slow-moving assets within a live total-portfolio framework.

Three key challenges of private markets allocation under SAA

Private markets give investors something public markets cannot always easily replicate; direct, idiosyncratic exposure to individual assets, whether these be specific companies, buildings, financing contracts, or projects. Those exposures can enhance return and improve diversification, and they are a large part of why institutional allocations to private assets have grown for two decades. Yet the same features that make private assets valuable can make them difficult to manage within a traditional SAA framework. Three challenges stand out.

Challenge 1 — Private and public exposures are hard to compare on a common footing.

Because each asset class is measured against its own benchmark, SAA can create an "apples and oranges" problem: a portfolio may look well diversified across labels while remaining concentrated in the same underlying economic drivers. Private credit, for instance, shares much of its risk with public credit. A private allocation may therefore diversify less than its label implies. The difficulty is compounded by the data itself. Private assets tend to be marked to valuation rather than continuously traded. That means their returns are smoothed and lagged, and the underlying information is typically supplied by external managers such that, even within a single asset class, formats may be inconsistent. A common, factor-based risk framework — one that decomposes every holding into shared drivers such as equity, credit, rates, and inflation — is part of best practice under SAA. Under TPA it is not merely good practice but central. It is the only language in which private and public assets can genuinely be compared in this setting.

A related and often overlooked issue is the gap between how private assets are modelled and what is owned. When private markets enter an SAA through the characteristics of a proxy benchmark, the portfolio is calibrated to the average behaviour of an index rather than to the specific risk-and-return profile of the actual fund or asset held. Equity indexes are comprised of publicly traded units which typically enable an investor to achieve almost any desired allocation and as such can be almost perfectly replicated, as index trackers or exchange traded funds do. By contrast, the private market indices or proxies are less easily replicated. The aggregate weightings can be matched, but the benchmark comprises heterogeneous and esoteric assets which are individually and privately held. Furthermore, private market benchmark weightings will also change from new inclusions, as those firms contributing to the index acquire or dispose of assets. These changes are only known after the index has reported, potentially 3-4 months after a relevant change took place. As such, the two can differ materially — a single buyout fund is not the private-equity index — and that mismatch can quietly distort both the expected diversification and the risk of the total portfolio.

Challenge 2 — Rigid allocations constrain the opportunity set and distort

implementation. When a private allocation exists to be filled to a target weight, the task becomes “reach the number and beat the benchmark within it” rather than “is this the best use of the next dollar of risk?” This produces familiar frictions: capital committed to reach a policy weight rather than because the opportunity is compelling, deployment into expensive vintages, and the denominator effect — in which a fall in public-market values mechanically pushes the private allocation above its range, pressuring the institution to slow commitments at precisely the moment opportunities are most attractive, as many investors experienced in real estate in 2022.

Challenge 3 — Static policy weights sit uneasily with illiquid, slow-moving assets, and

can hide risk concentrations. Private holdings cannot be traded like listed securities; these exposures can move counter-cyclically as contracted funds are drawn down over time, asset dispositions or fund redemptions take time to realise, and sale prices may deviate from valuation. A framework built around periodic rebalancing to fixed targets has no natural mechanism for these dynamics, so the private allocation is effectively treated as a separate domain which the rest of the portfolio must accommodate. Worse, when each team optimises its own segment, the overall fund can accumulate unintended concentrations that no single benchmark captures. For example, we might see a ‘doubling up’ on duration across real estate, infrastructure, and long-dated credit, or perhaps a big growth-equity beta exposure across venture, listed technology, and life-science property. Or perhaps the most contemporary example would be a portfolio across real estate, public tech, public industrials and private and public credit where each factor is highly linked to the AI narrative.

How TPA shifts thinking on private market investing

It has been argued that TPA makes it easier for investors to add private markets to a portfolio. We don't believe that is necessarily true, in fact, we think TPA raises the bar for inclusion. By requiring every commitment to demonstrate its contribution to desired portfolio outcomes, it makes private assets explicitly earn their place relative to other potential investments. What TPA changes is the framework in which that case is made, and the room it leaves for the qualitative characteristics that give private assets their edge. Thus, we see four main ways a total-portfolio approach facilitates private market investing, each answering one of the challenges above.

1. A common risk language that puts every asset on the same footing

A factor-based framework breaks every investment into its underlying drivers of risk and return, such as exposures to equity, credit, rates, inflation, and industry and country factors. This creates a common language across public and private markets and surfaces the concentrations that asset-class labels conceal; the private-credit example noted above, where much of the risk is shared with public credit, is exactly the kind of overlap it brings to light. Expressing private assets in the same terms as everything else is also what makes the proxy-versus-actual gap manageable, because the specific exposures of the asset held, not those of a proxy benchmark, can be measured and aggregated at the fund level.

This is the analytical foundation on which the benefits rest. Only once private assets are described in shared, comparable terms can they genuinely compete for capital, and only then can their distinctive qualities be weighed honestly rather than assumed from a label.

2. A wider opportunity set where private assets compete on merit, sector, and theme

With a common language in place, private assets can be assessed on an equal footing with other uses of capital. Thus, the public versus private debate becomes an explicit choice rather than a structural given: a buyout fund competes against listed small- and mid-cap equity plus leverage for example. Each private strategy must justify itself on the diversifying properties it is expected to deliver, not on its asset-class label. Liquidity is therefore treated explicitly, as a budget to be spent deliberately rather than assumed away.

Framing private assets by their underlying exposures can also bring sectors and themes to the foreground. These tend to be central considerations in private markets, rather than incidental ones. Increasingly, investors do not buy “real estate,” “infrastructure,” or “private credit” in the abstract; they buy exposure to the structural forces reshaping the economy. Demographic-driven housing shortages, data centres, logistics, or the build-out and financing of the energy transition for example. Private markets are often the most direct and investable expression of these themes, so under a total-portfolio approach the relevant question is not which allocation an asset fills but which theme it expresses and how efficiently it does so. Sector and thematic judgement therefore is a core part of assessing what a private asset genuinely contributes.

These shifts are clearest in the two areas where many investors hold their largest private exposures — private credit and real estate.

Fixed income allocations are not so fixed

Consider fixed income. Under a total-portfolio lens, private credit is assessed alongside listed fixed income as part of a single competition for capital, not as a separate “alternatives” line. The relevant comparison is not a private-credit peer index, but a synthetic alternative built from public building blocks — high-yield bonds, floating-rate loans, and business development companies — that delivers a similar payoff. The question becomes what each exposure contributes to the whole portfolio after allowing for return, risk, income, diversification, and liquidity.

Judged that way, private credit can complement listed bonds where it offers enhanced yield, stronger structuring, better lender protections, and access to borrowers unavailable in public markets. The framework still recognises the trade-offs — reduced liquidity, less frequent valuation, and greater reliance on manager skill — and weighs them explicitly against the potential for stable income and downside resilience.

Seen this way, a fixed income allocation is no longer fixed. Private credit need not sit at the satellite edge of the portfolio; for an investor able to tolerate lower liquidity over a long horizon, it can become a core income-generating exposure — provided its place is earned in competition with every other source of income and spread the portfolio could own.

The same competition for capital, and the same emphasis on sectors and themes, reshapes how real estate earns its place in the portfolio.

How real estate is adapting

Real estate illustrates both the demands and the opportunity of a total-portfolio approach. The demands fall into three areas. First, data and transparency: a total-portfolio view only works when an investor can compare a property with a listed security on a like-for-like risk basis, which requires the factor-level transparency and valuation discipline that private real estate has not always offered. Second, governance and culture: managers must frame their case in the investor’s whole-portfolio language rather than in vintage and asset-class labels. Third, fees and structures: the cost of access becomes part of the calculation, and both closed- and open-ended vehicles must demonstrate value net of fees against liquid alternatives such as listed REITs and real-estate debt.

The opportunity is equally real. The sector’s shift toward operational real estate — where returns are driven not only by owning the asset but by operating performance, customer demand, pricing power, and platform capability — fits the total-portfolio mindset well. It reframes property from a static allocation into a flexible source of outcomes and gives investors a richer set of levers to target specific exposures tied to structural themes such as demographics, digitalisation, urbanisation, and healthcare demand — precisely the theme-led lens described above.

3. More room to weigh and manage qualitative characteristics

SAA is oriented toward the quantitative aspects of portfolio management. Target weights, tracking error, benchmark-relative performance can be precisely measured and governed with discipline. But those same quantitative frames do not always neatly capture the qualitative features of private assets: the operational value a manager might add, the structuring and lender protections in a private loan, the contracted or inflation-linked cash flows of an infrastructure asset, or the platform capability behind an operating property. Advocates argue that TPA's flexibility allows these qualitative dimensions to be weighed and managed more fully. It is those idiosyncratic, hard-to-benchmark, characteristics of private assets that are generally deemed to generate their value and diversification.

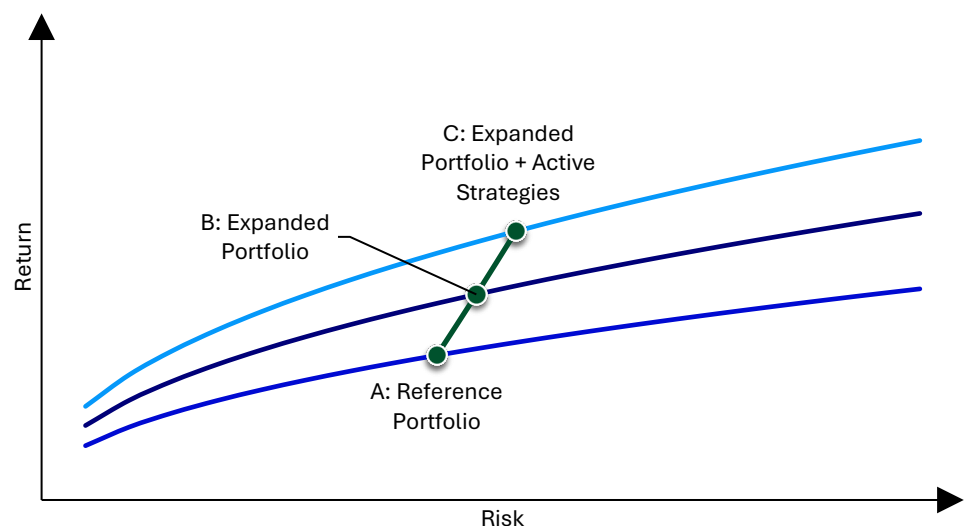
4. Explicit management of relative liquidity

The room for judgement noted above may improve how the private allocation is managed once it is held. Because the total-portfolio view treats liquidity as an explicit budget rather than an afterthought, commitments can be sized against the whole fund's capacity to bear illiquidity, vintage exposure can be diversified more deliberately, and the investor can retain flexibility through drawdowns instead of being forced to retreat when the denominator effect bites. The private allocation ceases to be a separate world the rest of the portfolio must work around and becomes an integrated set of exposures, managed alongside everything else with the same total-fund objective in view.

Reading the trade-off through the frontier

Exhibit 1, adapted from Cavaglia & Raymond (2026), shows this. Point A is a reference portfolio of liquid equities and bonds that expresses the fund's risk appetite. Moving from A to B represents funding a private or alternative exposure by selling liquid assets to obtain an "expanded portfolio". Moving from B to C layers on active decisions. This framing is especially apt for private markets because private assets are, at their core, purely active investments: there is no private market "beta" product to buy passively and cheaply, so every private commitment is an active decision that must be funded, sized, and governed accordingly. Exhibit 1 also shows why the flexibility-versus-governance trade-off is unavoidable — each move away from A introduces new exposures, and potential unintended concentrations, that must be identified and, where necessary, offset. The flexibility that lets an investor shift the curve upward is only as good as the governance and risk infrastructure that manages the exposures it creates.

Exhibit 1. Departures from the reference portfolio (A → B → C)



Source: Adapted from Cavaglia & Raymond (2026). Stylized and for illustrative purposes only; not representative of any actual portfolio or investment outcome.

Private markets under SAA and TPA

Taken together, the previous sections describe a consistent shift in how private markets are framed, risk-assessed, deployed, and rebalanced as an investor moves along the spectrum. Under SAA, a private allocation fills a policy weight, is judged against an asset-class benchmark, and is deployed to reach that weight; under TPA, it competes for capital, is judged by its marginal contribution to total-fund risk and return, and is deployed by relative value within an explicit liquidity budget. Exhibit 2 provides a broad overview of private markets under SAA and TPA.

Exhibit 2. Two frameworks, one spectrum: SAA and TPA for private markets

Both approaches pursue better long-term, diversified outcomes and rest on shared foundations. They differ in how a private commitment earns its place: SAA allocates to a benchmark or proxy to fill a policy weight; TPA allocates to a distinct asset that competes for the next dollar of risk on its contribution to the total fund.

SAA

How private markets are allocated under SAA — reach and hold target allocations, and seek to outperform within each

Set policy allocation	Define private markets mix	Select managers & vehicles	Commit to targets	Monitor vs. benchmark	Rebalance & repeat
Decision to allocate made here Allocates to a benchmark / proxy — the average behaviour of an index - Long-term targets per asset class - Capital-market assumptions - Private target as % of total	- Strategy, geography, vintage - Sub-allocations & ranges	- Due diligence vs. peers - Terms negotiated - Build diversified program	- Pacing plan sets commitments - Focus on target weights - May commit despite valuations	% of portfolio vs. range - Performance vs. benchmark	- Update assumptions - Adjust ranges & pacing - Repeat the cycle

TPA

How a private-market commitment earns its place under TPA — compete for the next dollar of risk, liquidity and governance

Private-market opportunity	Risk contribution	Relative value	Liquidity cost	Governance burden	Decision to allocate
- Fund, direct deal or co-investment - A potential use of capital	- What exposures does it add? - Equity, credit, rates, inflation - Common risk language	- Better than liquid alternatives? - Return, risk-adjusted, downside - Opportunity cost	- What liquidity does it consume? - Lock-ups, pacing, denominator - Liquidity budget	- Justifies the operational load? - Manager skill, data, oversight - Implementation capacity	Decision to allocate made here Allocates to a distinct asset — the specific fund or deal actually held ✓ Earns its place Improves total-portfolio outcomes net of costs. ✗ Does not earn its place Better uses of capital or risk exist.

Read the green cards together: the allocation decision comes **first** under SAA and **last** under TPA — and TPA commits to the **distinct asset actually held**, not a benchmark proxy.

Common ground — shared foundations of both frameworks — Neither works without these; TPA simply makes the same disciplines more explicit and continuous.

A common risk model

Factor decomposition of every holding — best practice under SAA, critical under TPA.

Long-term objectives

A strategic anchor for accountability, communication and diversification.

Manager & expert insight

Subject-matter judgment on private assets remains essential in both.

Governance discipline

Clear ownership, oversight and controls around private commitments.

Periodic reassessment

Assumptions, exposures and outcomes are reviewed as conditions change.

Where they diverge — the same dimensions, judged differently

Distinct to SAA Policy-weight and benchmark-relative thinking		Distinct to TPA Total-fund, relative-value thinking
A benchmark or proxy that stands in for the asset class	Allocates to	The distinct asset actually held — the specific fund or deal
Fills a pre-set policy weight with its own target and ranges	Role	Competes for the next dollar of risk against every use of capital
Asset-class labels; factor overlaps can go unnoticed	Risk lens	Factor decomposition; contribution to total-fund risk
Deploy to reach a weight; vulnerable to expensive vintages	Commitment	Deploy by relative value within a liquidity budget
Drawdowns push privates above range, pressuring a halt	Denominator	Illiquidity budgeted deliberately; flexibility maintained
Silo behaviour & hidden factor concentration	Main risk	Complexity, governance strain & higher data demands

A common risk framework sits at the centre of the difference between the two approaches. As noted earlier, decomposing every holding into shared factor exposures is best practice under SAA but becomes critical under TPA, because it is the shared language that lets private and public assets compete on a common footing. It should be noted that building such a framework is not a trivial exercise. Modelling illiquid, infrequently priced, smoothed-return assets in the same terms as liquid securities requires assumptions and choices that combine judgment, art, and science. The quality of the total-portfolio view depends heavily on getting them right and simply implementing a TPA approach far from guarantees that. Expertise and subject matter knowledge of the private markets space remain as critical under TPA as it does under SAA.

Private markets on the spectrum: Understanding the trade-offs

There are clearly ways in which TPA can improve how private markets are seen and managed in portfolios. However, there are challenges that mirror the benefits and it is important to understand these.

Data and valuation. The same smoothed, lagged valuations that make private assets hard to compare also make total-portfolio risk harder to measure; the factor decomposition that is straightforward for liquid assets is far more demanding for holdings without daily pricing.

Governance must be genuinely restructured, not merely adjusted. Roger Urwin, a leading proponent of the total portfolio approach, noted that SAA offers comfortable governance but 'clunky' portfolio management, while TPA brings efficiency to portfolio design but demands a stretch in governance. Breaking down silos so public- and private-market teams evaluate opportunities against a shared objective is a cultural change as much as a structural one. It demands different skill sets and knowledge sets. Finding experts in both public and private markets can be challenging.

Liquidity mismatch constrains dynamism. TPA prizes responsiveness, yet private assets tend to be illiquid. Bridging that friction requires real infrastructure. Liquidity pacing simulation, capital stress-testing, and cross-asset benchmarking can be difficult and costly. For some institutions the benefits may not justify the cost.

Importantly, the qualitative dimension is part of the spectrum. Moving toward TPA is not only a decision to accept more flexibility and build more governance; it is also a decision about how much weight to give the qualitative characteristics — and the sector and thematic judgements — that a purely quantitative, benchmark-relative framework tends to leave out. The further an investor moves along this spectrum, the more explicitly those factors can be brought into the competition for capital, and the more governance is needed to do so responsibly.

Conclusion

The central point is not that a total-portfolio approach makes private markets easier to own. It does the opposite. It makes the case for private markets more explicit, more comparative and more demanding. A private commitment must show not only the return it may generate, but also the risks it imports, the liquidity it consumes, the governance attention it requires and the role it plays alongside the rest of the portfolio.

That is why private markets are a useful test case for TPA. Their value often lies in features that traditional benchmarks struggle to capture; manager skill, structuring, operational control, direct access to assets and exposure to long-term themes. But those same features create practical difficulties: valuations are less frequent, liquidity is constrained, data can be inconsistent and the line between genuine diversification and hidden factor concentration can be hard to draw. TPA does not remove those difficulties. It forces them into the open.

For most institutions, the answer is unlikely to be a pure choice between SAA and TPA. A strategic anchor will still matter for accountability, communication and governance. The opportunity is to apply the most useful total-portfolio disciplines where they add most value: a common risk language, explicit liquidity budgeting, relative-value-driven commitments and a willingness to move beyond traditional boundaries and judge private assets by what they contribute to the whole fund, not by the policy bucket they occupy. Used well, that is the healthier test: not whether private markets deserve an allocation in principle, but whether each exposure earns its place in practice.

References

1. Cavaglia, S., & Raymond, D. M. (2026). Transitioning from SAA to TPA: Governance and Communication Requirements. Working paper.
2. Invesco (2026). Understanding the Total Portfolio Approach: A Primer. Invesco Strategy & Insights, In Depth.
3. Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, 7(1), 77–91.
4. Raymond, D. M. (2009). Integrating Goals, Structure, and Decision-Making at Canada Pension Plan Investment Board. *Rotman International Journal of Pension Management*, 2(1), 1–9.
5. Sharpe, W. F. (1981). Decentralized Investment Management. *The Journal of Finance*, 36(2), 217–234.
6. Urwin, R., & Hayman, G. (2026). The Total Portfolio Approach (TPA): A Practical Guide for Navigating the Transition to TPA. CFA Institute Research and Policy Centre.

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